

PRODUCT CHARACTERISTICS

V_{DS}	100V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$)	1.05m Ω
Q_g @typ	285nC
I_D	385A

APPLICATIONS

- * Battery Management
- * Motor Control and Drive
- * Switching Applications

FEATURE

- * Low Gate Charge
- * Low Reverse Transfer Capacitance
- * 100% Avalanche Tested

ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
MOT1112T4	N/A	TOLT	2000 pieces/Reel

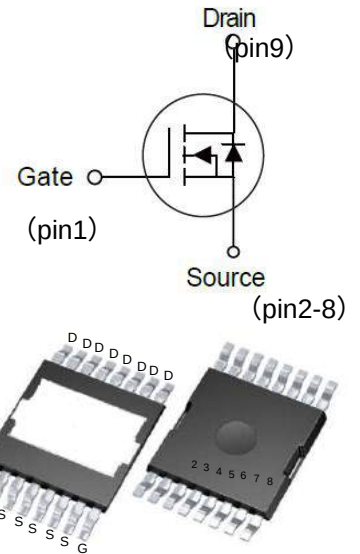
ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current Continuous(@ $V_{GS}=10V, T_A=25^{\circ}C$)	I_D	385	A
Drain Current Continuous(@ $V_{GS}=10V, T_A=100^{\circ}C$)	I_D	280	A
Drain Current Pulsed	I_{DM}	1540	A
Avalanche Energy *	E_{AS}	2100	mJ
Power Dissipation	P_D	360	W
Junction Temperature	T_J	+175	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +175	$^{\circ}C$

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Case	R_{thJC}	0.41	$^{\circ}C/W$

Note: * EAS condition: $T_J=25^{\circ}C, V_{DD}=50V, V_G=10V, L=1mH, R_g=25\Omega$



■ ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V _{DSS}	V _{GS} =0V, I _D =250μA	100	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V	-	-	1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{DS} =0V, V _{GS} =+20V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{DS} =0V, V _{GS} =-20V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =50A	-	1.05	1.2	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	2	3.2	4	V
Dynamic characteristics						
Gate capacitance	R _g	V _{GS} =0V, V _{DS} =0V ,f=1.0MHz	-	0.9	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =5A	-	32	-	S
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V f=1.0MHz	-	15790	-	pF
Output Capacitance	C _{oss}		-	5411	-	pF
Reverse Transfer Capacitance	C _{rss}		-	460	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	I _D =20A, V _{DS} =50V R _G =1.6Ω ,V _{GS} =10V	-	40	-	ns
Rise Time	t _r		-	32	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	100	-	ns
Fall Time	t _f		-	36	-	ns
Total Gate Charge	Q _g	I _D =20A, V _{DS} =50V V _{GS} =10V	-	285	-	nC
Gate to Source Charge	Q _{gs}		-	85	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	72	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _S		-	-	385	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	1540	A
Diode Forward Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.68	1.3	V
Reverse Recovery Time	t _{rr}	I _{SD} =20A, T _J =25℃ dI/dt=100A/μs	-	110	-	ns
Reverse Recovery Charge	Q _{rr}		-	300	-	nC

■ TYPICAL CHARACTERISTICS

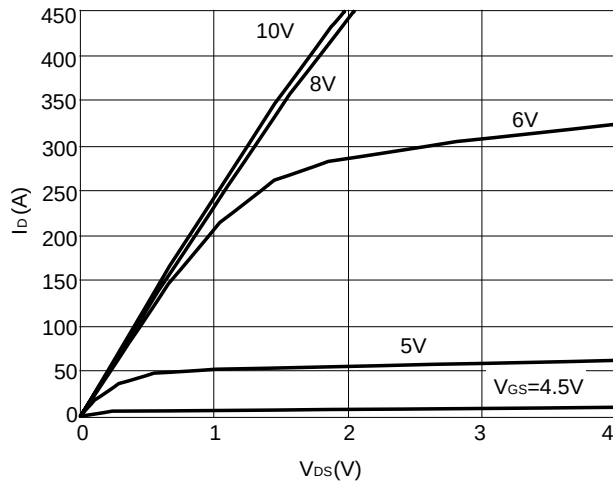


Figure 1: Output Characteristics

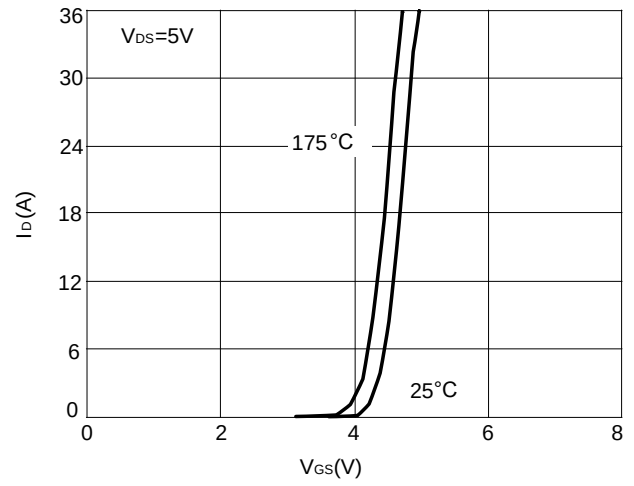


Figure 2: Typical Transfer Characteristics

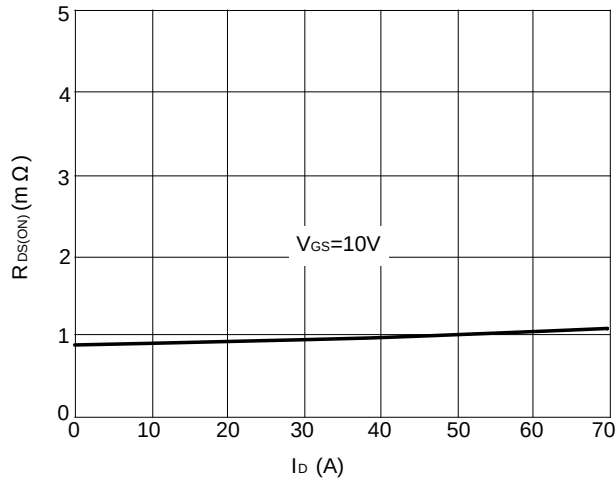


Figure 3: On-Resistance vs. Drain Current

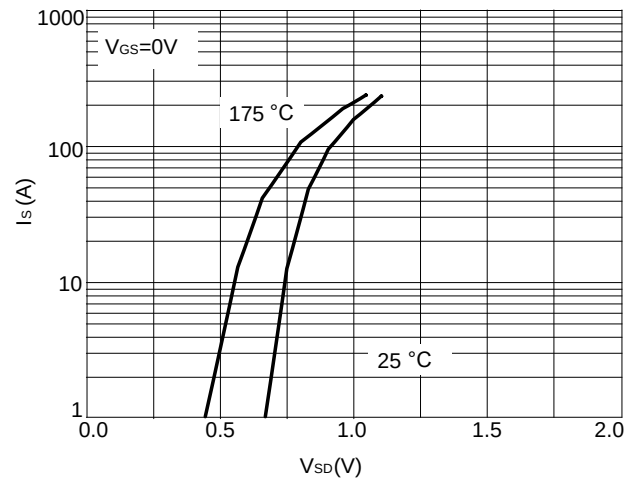


Figure 4: Body Diode Characteristics

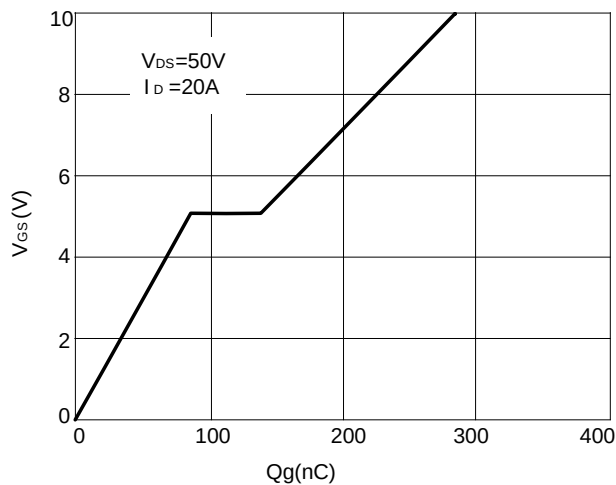


Figure 5: Gate Charge Characteristics

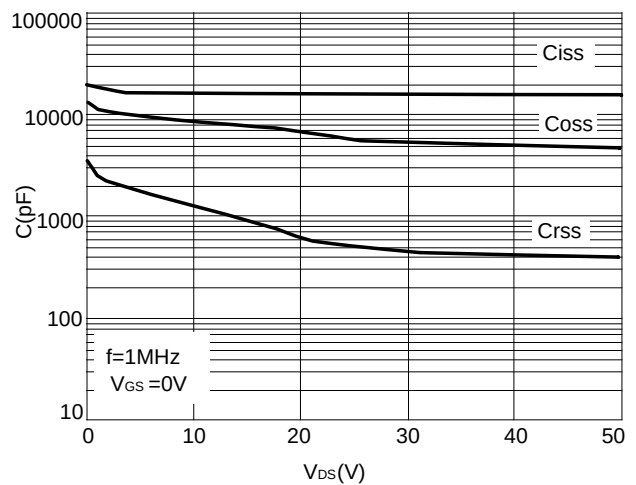


Figure 6: Capacitance Characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

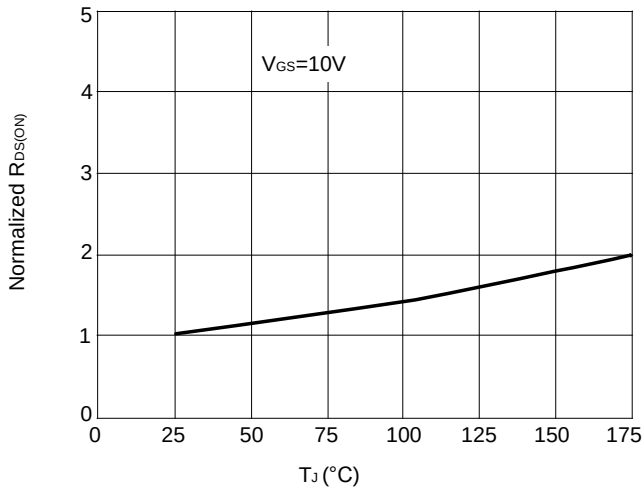


Figure 7: Normalized on-Resistance vs. Junction Temperature

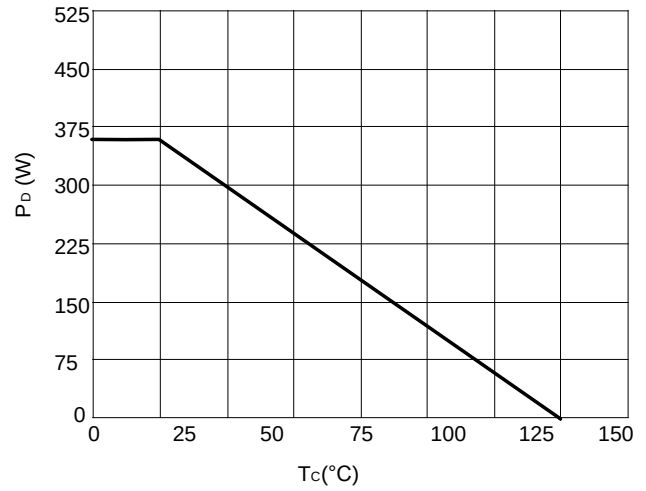


Figure 8: Power De-rating

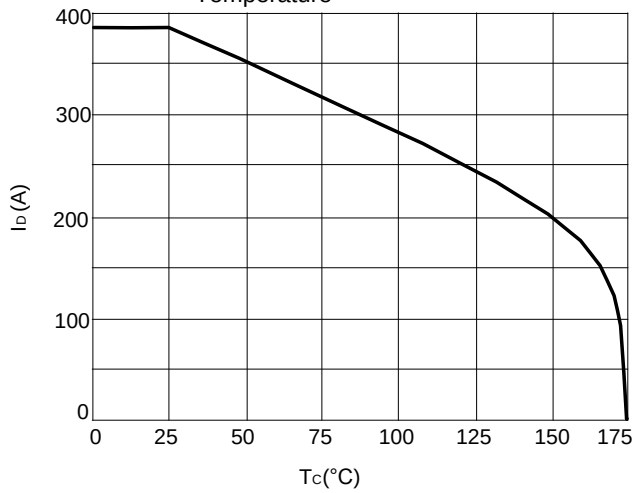


Figure 9: Current De-rating

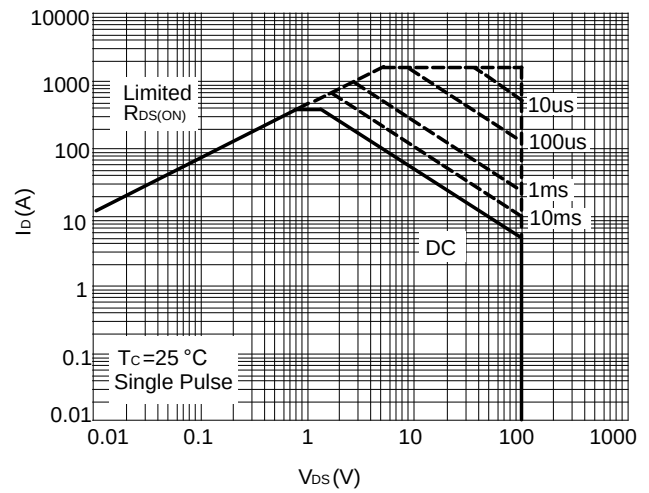


Figure 10: Maximum Safe Operating Area

■ TOLT PACKAGE OUTLINE DIMENSIONS

